Section 8

Wrap-Up

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Ground System/Ops Manager

Lessons Learned

- ***Swift***
  - *Augment Malindi with additional ground station support (e.g., USN)*
  - *Have ability to send Burst Alert Messages through the ground station link*
  - *Automate the data processing "pipeline" and simplify the Level 0 processing*
  - *Work IT Security planning with Code 290 early and bring on an expert*
  - *Use ground system-level documents and reviews to help ensure elements (systems and people) work and function as a whole*
  - *Ensure FOT staffing is realistic – Swift was initially too light*
- ***IMAGE***
  - *Plan and fund so that the FOT can spend significant amounts of time at the spacecraft I&T facility*
  - *Put MOC systems in the I&T facility as well*
- ***GRO***
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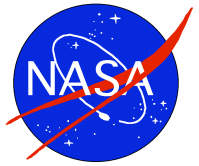
Open Issues

- ***Italians (ASI) unable to commit funds to provide the Malindi Ground Station***
  - *Keeping spacecraft requirement to be compatible with the Malindi 6 meter antenna in case ASI funding returns.*
  - *Determined that USN can provide the needed support with stations in Hawaii and Australia, so issue is really more of a cost issue*
  - *Conducting Ku-Band Band Study with Spectrum Astro to determine feasibility, cost, etc. of adding TDRSS Ku-band capability to spacecraft*
  - *Also looking at bringing in Wallops for additional support*
- ***Between latter part of spacecraft I&T and beginning of observatory I&T, Spectrum Astro availability is limited, so their ability to support the ground system and operations activities is limited***
  - *Working within Project and with Spectrum to determine level/type of effort needed versus level/type of effort available*
  - *Activities potentially affected: MOR, Mission Ops Readiness Plan, GRT's, interface testing with the spacecraft and Hotbench*

Open Risks



- ***Need permanent LAT IOC Operations Lead***
  - *SLAC pursuing bringing on permanent hire.*
  - *Dave Lung serving as interim lead*

TBD/TBR Summary

- ***The TOO latency requirement (6 hours) does not have a reliability number associated with it like the other latency requirements***
  - *Example: Complete data processing within 72 hours 95% of the time*
  - *Working with Systems Management team to reexamine MSS requirement*
- ***Ground system may not be able to meet the current one second allocation (out of 7) for Burst Alert processing without cost impacts***
  - *Working with Project Scientist and Systems Management teams*
- ***Current ground allocation of 12 hours (out of 72) for data processing latency will be difficult to meet without cost impacts***
  - *Particularly affects the bandwidth requirements on the data network*
  - *Working with Systems Management Team to reexamine allocation to spacecraft (36 hours) and consider reallocating some to the ground system*
- ***Need to confirm that the spacecraft as designed can support the Differenced One-Way Doppler (DOWD)***
  - *Working with Spectrum Astro to determine if there are any Communication Subsystem incompatibilities*

Road to Ground PDR (December '03)

- ***Baseline the GSRD, Ops Concept Document Revision A, and the Ground System Project Plan (by Sept'03)***
- ***Complete long term contract with Goldbelt Orca/Omitron for MOC implementation and flight ops (by Sept'03)***
- ***Generate preliminary versions of ground system ICD's and IT Security documents by GPDR***
- ***Generate preliminary version of Ground System Test Plan and Requirements Verification Matrix by GPDR***
  - *Label launch critical requirements based on mapping to launch critical functionality list in GSRD*
  - *Assign requirements to GRT's*
- ***Begin first LAT Data Challenge (Sept'03)***
- ***Conduct LAT IOC Peer Review (Nov'03)***
- ***Conduct GBM IOC PDR (Oct'03)***

GSRR Accomplishments

- ***Described plan and schedule for managing, implementing and testing the GLAST Ground System***
- ***Presented plan and schedule for ground system documentation***
- ***Presented the ground system requirements***
- ***Presented the operations concept within which the requirements are derived and understood***
- ***Provided preliminary, early insight into future plans for achieving operations readiness***
- ***Identified open items, risks and TBD's***